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MONOCYTE SUBSETS PREDICT VASCULAR INFLAMMATION BEYOND TRADITIONAL RISK FACTORS OF CARDIOVASCULAR DISEASE IN PSORIASIS

Poster Contributions

Hall C

Saturday, March 29, 2014, 3:45 p.m.-4:30 p.m.

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Background: Psoriasis (PSO), a systemic inflammatory disorder, is associated with increased susceptibility to cardiovascular disease (CVD), and circulating blood monocytes are thought to play a role. Monocytes are considered to be a heterogeneous population, and while the CD16-classical monocytic subset has been associated with early atherosclerosis, the role of CD16+ subsets is unclear. The current study utilized 18-Fluorodeoxyglucose (FDG)-positron emission tomography (PET) computed tomography (CT) imaging, a reliable indicator of vascular inflammation, atherosclerotic plaque activity and future CV events, along with flow cytometry to evaluate the relationship between vascular inflammation and monocytic subsets in PSO.

Methods: In vivo vascular inflammation, defined by maximum standardized uptake value (SUV) in the aorta, was measured by FDG-PET/CT in PSO patients (n=26). Monocytic subsets were evaluated based on differential expression of CD14 and CD16 in the peripheral whole blood: classical (CD14++CD16-), intermediate (CD14++CD16+), and nonclassical (CD14+CD16++). After adjusting for traditional CVD risk factors, demographics, HDL efflux and BMI, the relationship between monocytic subsets and aortic vascular inflammation was determined using linear regression analysis.

Results: FDG-PET/CT imaging demonstrated vascular inflammation in the aorta that significantly correlated with total monocyte count ($\beta=0.26$, $p<0.01$), classical ($\beta=0.02$, $p<0.01$), intermediate ($\beta=-0.30$, $p<0.01$), and nonclassical subsets ($\beta=0.22$, $p<0.01$). In opposition to the other subpopulations, an increase in the intermediate subset was associated with decreased aortic vascular inflammation. These findings were supported by the classical: intermediate ($\beta=0.06$, $p<0.01$), nonclassical: intermediate ($\beta=0.61$, $p<0.01$), and classical: nonclassical ratios ($\beta=-0.05$, $p<0.01$).

Conclusions: Total monocyte count as well as all three monocytic subsets independently predict aortic vascular inflammation beyond traditional risk factors in PSO. For the first time, we demonstrate that CD16+ cell populations may have relevance in CVD, and that intermediate monocytes may protect from CVD.